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Letters to the Editor

Dear Editor

Effects of N-Acetylcysteine on hyperoxic lung in the rat

It is becoming increasingly recognized that exposure to hyperoxia results in pulmonary injury, and this is closely related to oxidant-antioxidant imbalance in the lung. The main stay of the pathophysiology of this condition is the effect of oxygen-derived free radicals on the alveolocapillary barrier (ACB) (1). Studies have shown that N-acetylcysteine (NAC), a thiol-containing compound, non-enzymatically interacts and detoxifies free radicals (2). We have investigated the effectiveness of NAC as a cytoprotective agent against hyperoxic pulmonary damage in experimental animals. Thirty wistar rats (weight 250 ± 30 g) were used in these experiments and divided into three groups. The first group was exposed to 100% oxygen only; the second group was pre-treated with NAC 600 mg kg^{-1} day^{-1} for 5 days, then exposed to 100% oxygen; the third group was also pre-treated with NAC as above but exposed to ambient air. Animals were killed 24 h later and their lungs were removed and examined by light microscopy (LM), and transmission electron microscopy (TEM). Focal alveolar haemorrhage/oedema was assessed semi-quantitatively, while diffuse alveolar congestion and perivascular oedema was graded as slight, moderate or severe.

Thirty-three percent of alveoli showed generalized congestion and slight perivascular oedema, in addition to enlargement of the alveolar endothelium in all animals of the first group. In contrast, the alveoli of groups two and three appeared normal, but they were infiltrated by a large number of alveolar macrophages.

These results suggest that NAC may act as an antioxidant, and reduce oxygen-derived free radicals which may increase permeability of ACB (3) and therefore reduce the inflammatory response mediated by neutrophils (4,5).

We conclude that NAC can be utilized in the prevention of hyperoxic lung damage, as it reduces lung injury on ACB cells.

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Dear Editor

Home nebulizer service

We were interested to read about the audit of a home nebulizer service provided by respiratory care nurse specialists from University Hospital, Nottingham.

As a team of respiratory care nurses (3 full-time equivalents), we have been running an efficient nebulizer service for the past 5 yr, on much the same lines as described in the audit. We have had the benefit of a secretary to run the system administratively and have found that it works extremely well. The number of nebulizer compressors required has in fact dropped due to more efficient assessment and the finding that many patients benefit just as much from high dose bronchodilator by large volume spacer, as by nebulization. A local maintenance and repair service for nebulizers/compressors run by the hospital electronics engineering department with the co-operation of the manufacturers, has been running successfully for the past 2 yr. This is available to all patients who have had nebulizers provided by the unit, whether under continuing hospital follow-up or not.

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